Pesticide Review

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Any Comments? You Bet!

The USEPA Draft of Spray and Dust Label Statements

The comment period for the Draft Pesticide Registration Notice on Spray and Dust Drift Label Statements for Pesticide Products ended March 31. The fact that the USEPA extended the comment period twice from the original "due date" of November 20, 2001, indicates a huge amount of interest in the proposed label language and the resulting application restrictions.

Currently, the proposed labeling would prohibit pesticide applications when wind speed exceeds 10 miles per hour (mph); limit boom widths for aerial application and boom heights for ground application; and prohibit drift from contacting the surrounding nontarget areas. Growers and crop-consultant companies have weighed in that zero drift would be impossible for applicators to achieve and still provide protection for their crops. They are in favor of the growers' being responsible for determining ideal wind speeds—instead of the label mandating no spraying if winds exceed 10 mph.

In a letter to the USEPA that is posted on the Web page of the Illinois Fertilizer and Chemical Association (IFCA), the group addressed several concerns that have been common among the many recent articles in trade magazines. Comments included concern over the inflexibility and impracticality of a zero-tolerance standard. Proposed statements limiting boom height on ground-application equipment also met concern, again because of the inflexibility in adapting an application to meet the demands of the specific conditions and equipment in the field, particularly fixed-position booms and nozzle orientation. More concern was expressed at the proposed statements limiting applications to times when wind speed is 10 mph or less. A common theme was the impact that these label statements would have in reducing the ability of the applicator to make situation-specific decisions and to adopt and benefit from new drift-reducing technology as it becomes available.

The president of the Association of American Pesticide Control Officials (AAPCO), which includes state lead agencies such as the Illinois Department of Agriculture, sent an official letter to EPA regarding the labeling. While AAPCO agrees with the flexibility, scope, and intent of the labeling, it has strong reservations about the agency's using the 1999 AAPCO Pesticide Drift Enforcement Survey to support the need for improved labeling. AAPCO contends that the survey simply referenced the number of drift complaints received by states, without quantifying the applications that have been made with no complaint or off-target adverse effects.

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CropLife America also sent comments to EPA regarding the drift labeling. In summary, they echoed other stakeholder comments arguing against the wind-speed limits and zero-drift language. CropLife contends that drift should be handled on a local level rather than with a single, national approach. It also contends that the proposed buffer zones would eliminate almost 7 million acres of farmland from production.

So, what's the debate all about? Here is an excerpt of the proposed label language, taken from the USEPA's draft pesticide registration notice:

Products Applied as Sprays—All Affected Products, Except Home and Garden Products: "Do not allow spray to drift from the application site and contact people, structures people occupy at any time and the associated property, parks and recreation areas, nontarget crops, aquatic and wetland areas, woodlands, pastures, rangelands, or animals.

"For ground boom applications, apply with nozzle height no more than 4 feet above the ground or crop canopy and when wind speed is 10 mph or less at the application site as measured by an anemometer. Use _____ (registrant to fill in blank with spray quality, e.g. fine or medium) or coarser spray according to ASAE 572 definition for standard nozzles or VMD for spinning atomizer nozzles.

"For orchard/vineyard airblast applications, do not direct spray above trees/vines and turn off outward pointing nozzles at row ends and outer rows. Apply only when wind speed is 3-10 mph at the application site as measured by an anemometer outside of the orchard/vineyard on the upwind side.

"For aerial applications, the boom width must not exceed 75% of the wingspan or 90% of the rotary blade. Use upwind swath displacement and apply only when wind speed is 310 mph as measured by an anemometer. Use _____ (registrant to fill in blank with spray quality, e.g. fine or medium) or coarser spray according to ASAE 572 definition for standard nozzles or VMD for spinning atomizer nozzles. If application includes a no-spray zone, do not release spray at a height greater than 10 feet above the ground or the crop canopy.

"For overhead chemigation, apply only when wind speed is 10 mph or less. The applicator also must use all other measures necessary to control drift."

The public debate over the proposed drift statements attests to the importance of applicators' minimizing drift during pesticide applications and shows that one consequence of drift is increased regulation. Much of the current debate is over what should be regulations versus what should remain guiding recommendations.

(*Mark Mohr; sources:* http://www.ifca.com; http://www.epa.gov; Pesticide & Toxic Chemical News, *vol. 30, nos. 22, 25; May 2002* PEP-Talk, *The Ohio State University.)*

Choosing Nozzles to Reduce Drift

Drift can have severe consequences, and the nozzles you use to spray are as important as what you spray. Many newer nozzle designs are available to help applicators reduce drift—as long as the applicator also watches the wind speed and direction.

Air-induction, or venturi, nozzles are one tool to reduce drift. Though several designs are available, they work similarly, using a mixing chamber combined with a venturi that draws air into the spray and reduces pressure at the nozzle tip. The result is larger droplets that reach their target more effectively than small droplets, reducing potential drift.

The mixing, or "turbulence," chamber is a feature found in many newer nozzle designs. The Turbo Teejet™ uses a turbulence chamber to create larger droplets and uniform patterns. A similar mixing chamber is used in some flooding nozzles. The goal of each design is a more uniform spray pattern, along with larger droplets that resist drift. One of the first uses of a pre-orifice and mixing chamber in a nozzle was the "drift-guard" or "drift-reducing" flat-fan nozzle.

A key component in reducing drift is matching the nozzle to the job. Using one set of nozzles for all applications can result in poor pest control, drift, or both. Each of the nozzle types mentioned creates a different range, or spectrum, of droplet sizes. Some may produce large droplets that are suited for soil applications; others may produce medium droplets suited for some foliar applications. Labels and nozzle catalogs have standard terms that refer to specific droplet spectra, so both documents are important references to use when putting nozzles on a sprayer. If a label calls for "coarse" droplets, look in the nozzle catalog and choose a nozzle and operating pressure that gives you "coarse" droplets. Droplet spectra are categorized according to a standard called ASAE S572.

The nozzle you choose should be based on the label on the material you're spraying. In general, droplet spectrum should increase as you go from foliar fungicides to insecticides, contact herbicides, systemic herbicides and then to soil-applied herbicides. The droplet spectrum from any particular nozzle depends on its size and the operating pressure; but in general, droplet spectrum gets larger as you go from drift-reducing flat-fan, to Turbo Teejet, to venturi, to Turbo Flood nozzles. Remember, the final authority on droplet size is the pesticide label. *(Mark Mohr)*

Insecticide Chalk Gets Registration

Insecticide chalk from China has been sold illegally in the United States, particularly in larger cities, for several years. The most infamous is Miraculous Insecticide

Chalk, containing delta-methrin and cypermethrin. In addition to not being certified and labeled under USEPA regulations, it looks very similar to blackboard or sidewalk chalk, making it attractive to children. There have been numerous reports of children drawing with this chalk or putting it in their mouths. When using the chalk according to directions, one draws areas where cockroach control is desired with no wrapper or other protection from hand contact with the insecticide stick. Between 1992 and 1995, Poison Control Centers across the United States received a total of 668 reports of poisoning incidents involving insecticide chalk.

A form of insecticide chalk called Ze Lin Chen Chalk has recently been certified by USEPA, making it legal for sale in the United States. It contains 1.00% tralomethrin and is packaged in a dispenser tube that greatly reduces applicator contact with the insecticide. The dispenser also has a child-resistant cap. There are also cautions against applying the insecticide where children and pets can come into contact with it. It is labeled for the control of ants, cockroaches, and crickets, and is applied by drawing a continuous band as a barrier around shelving, cabinets, and other objects to be protected. It is made in China and distributed by a Los Angeles company. *(Phil Nixon; sources: USEPA Pesticide Label and City of Ft. Worth, TX, Web site.)*

Landscape-Insecticide Use Changes

The Food Quality Protection Act of 1996 requires that pesticides be evaluated for their exposure to various segments of the human population, particularly children. The concept of a "risk cup" is used to determine the amount of exposure. If children are at a greater risk from a pesticide exposure due to their developing bodies, eating patterns, behavior, or other factors, the risk cup is made one-tenth as large.

USEPA considers organochlorine, organophosphate, and carbamate pesticides to present a potentially greater risk to children because a child's nervous system continues to develop for years after birth and these pesticides affect nerve transmission. In addition, these pesticides have common food and residential uses. Thus, USEPA has been evaluating these pesticides before many others, resulting in reduced use patterns and some product elimination from the marketplace. Most of these pesticides are insecticides.

USEPA has completed most of the individual risk-cup evaluations of organophosphate and carbamate insecticides. It has yet to complete aggregate risk-cup evaluations for the organophosphates and carbamates as a group. This may cause additional restrictions in the future. Following is the status of the more commonly used landscape and residential insecticides that have been covered. Several of these changes are the result of voluntary cancellations. Previously purchased products can still be used according to the label on the container.

Organochlorines

Dicofol, sold as Kelthane, will have all residential uses eliminated, including residential landscapes. Applications with handheld equipment will be eliminated, and applicators using other equipment must be protected by enclosed cabs.

Endosulfan, sold as Thiodan: Uses in and around the home, public buildings, and recreational areas have been cancelled.

Lindane is no longer registered for uses in buildings and landscapes.

Methoxychlor product labeling has been suspended since June 2000.

Organophosphates

Acephate, sold as Orthene, will have essentially all indoor and outdoor homeowner residential uses deleted, except for using a hose end sprayer to outdoor nonturf, ornamental plants and individual ant mound treatments. Some indoor uses are still approved for commercial buildings. Landscapes, including residential areas, can be treated except for granular use on ornamental trees and shrubs and application with low-pressure wands. Home lawns cannot be treated, but golf courses and sod farms can still be treated except aerially. Rates will be reduced for greenhouse applications.

Chlorpyrifos, sold as Dursban, has had all residential indoor and outdoor uses eliminated except for use in ant baits and mosquito adulticide public health programs. Some indoor commercial building uses still remain. All other outdoor uses have been eliminated except for use on golf courses, road medians, industrial sites, and some wood treatments. Some fire ant treatments remain. Termite uses are being phased out. Selling products with old labeling became illegal on December 31, 2001.

Diazinon products with indoor uses, except for mushroom houses, will not be sold after December 31, 2002. Diazinon is no longer available as Knox Out for greenhouse use. All outdoor nonagricultural products, including lawn, garden, and landscape uses, will be phased out and cannot be sold after August 2003.

Dimethoate, sold as Cygon and other trade names, will not be sold for residential and public area uses after March 12, 2003. Some agricultural and other nonagricultural uses will also be eliminated at that date.

Isofenphos, sold as Oftanol, will no longer be available.

Phosmet, sold as Imidan, will be cancelled for all products used in or around the home or on pets.

Carbamates

Bendiocarb—sold as Turcam, Ficam, Closure, and others—had all uses cancelled as of December 31, 2001. *(Phil Nixon)*

Interregional Research Project (IR-4)

Interregional Research Project No. 4, commonly known as IR-4, was established by the USDA in 1963 to help producers of minor crops obtain tolerances and registrations for pest-control products. It is a government- and university-sponsored program to develop the data necessary for submitting minor-crop and minor-use pest-control options to the Environmental Protection Agency (EPA).

A minor crop is defined as any crop grown on 300,000 acres or fewer. This includes most vegetables, fruits, nuts, herbs, spices, and nursery and landscape plants and flowers. Minor crops account for about 40% of the total agricultural sales for the United States. Minor uses involve limited pest-control treatments to large acreage crops, due to localized or sporadic pest problems. As the Food Quality Protection Act (FQPA) threatens to restrict or eliminate many long-standing pest control products, IR-4 is focusing on "reduced risk" and safer chemistry to ensure the producers of minor crops have an adequate toolbox of pest-control products, both traditional pesticides and biopesticides.

How Can IR-4 Help You?

IR-4 is a grassroots organization in which pest-management needs, in the form of clearance petitions, are initiated by individual growers, grower organizations, agricultural scientists, and Extension personnel. Each state has one or more IR-4 liaison representatives available to help you with the petition process. The IR-4 network also includes regional field and laboratory research centers staffed with scientists who carry out testing necessary to provide data for clearance petitions. To utilize the IR-4 program, you must make your pest-control needs known, either directly or through your state's IR-4 liaison(s).

In Illinois, your IR-4 liaisons are

•Loyd M. Wax, Professor of Plant Physiology and Weed Science, USDA-ARS, Department of Crop Sciences, University of Illinois, 1102 S. Goodwin Ave., Urbana, IL 61801. Telephone: (217)333-4424. E-mail: l-wax@uiuc.edu

•David J. Williams, Professor of Horticulture, University of Illinois, Department of Natural Resources and Environmental Sciences, 1037 Plant Sciences Building, 1201 S. Dorner Dr., Urbana, IL 61801. Telephone: (217)333-2126. E-mail: william3@uiuc.edu

The national IR-4 contact is Bob Holm, IR-4 Executive Director, Center for Minor Crop Pest Management, Technology Centre of New Jersey, Rutgers, 681 U.S. Highway 1 South, North Brunswick, NJ 08902. Telephone: (732)932-9575. E-mail: Holm@AESOP.Rutgers.edu

Setting Priorities

Clearance petitions are sent to the IR-4 coordinator. Each petition is reviewed regionally, as well as nationally at the IR-4-sponsored Food Use Workshop. State and federal minor-crop pest-control experts, growers, commodity organizations, and representatives from EPA and industry attend the workshop and set research priorities. Priorities are developed and based on the importance of the pest problem, the availability of alternatives, the existence of data gaps, and the value to integrated pest-management programs. Only high-priority projects are slated for research.

IR-4's work is limited to field testing for effectiveness against the target pest, testing for crop safety, and residue analysis for food crops. Therefore, IR-4 must check to ensure that all the necessary core data requirements, such as chemistry, toxicology, and environmental fate, have been completed by the pesticide registrant and accepted by EPA. The registrant's review determines whether data gaps exist that may create delays in reviewing and approving IR-4 petitions for tolerance or exemptions. The registrant must then agree to support the proposed use. This allows IR-4 to focus resources on projects with the greatest likelihood of successful completion.

Research Phase

Based on demanding protocol, state and federal agricultural scientists conduct the field research. In fact, this past year, the University of Illinois Arboretum was designated as the first ornamentals research center in the national IR-4 system; there are currently over 60 IR-4 ornamentals projects at the U of I. In the north-central region, there are also two food crops research centers, one located at Michigan State University and the other at Wisconsin. All of the data generated during the field and laboratory phases of research are sent to IR-4 headquarters. The data are reviewed by scientists at IR-4 and written in final format for submission to EPA. The time from study initiation to petition or data package submission is 30 months for high-priority projects but may be longer for lower-priority projects.

Decision Time

EPA carefully reviews the IR-4 petitions and data packages. When EPA approves a petition, a notice, followed by a final rule, is published in the Federal Register (www.epa.gov/fedrgstr/EPA-PEST/index.html). The time frame for EPA approval can range from 3 months to 2 years or more. Registration follows after the registrant requests EPA's approval of the specific directions for use that will appear on the label. The product may be

made available for national use, be confined to a limited geographical region, or be identified for Special Local Need (24c) in a specific state or states.

IR-4 Impact

IR-4's impact can be measured by the large number of minor-crop pest-control clearances established or retained as a result of IR-4's efforts. Over 5,000 food-use clearances, over 7,000 ornamental clearances, and over 100 biopesticide clearances have been established since 1963. This quantity is over 40% of the total number of clearances granted by EPA.

The IR-4 mission is to provide pest-management solutions to growers of fruits, vegetables, and other minor crops. People who benefit from IR-4 are growers of minor crops, food processors, and consumers. The success of this endeavor largely depends on those who submit petitions and the many cooperating individuals and agencies that conduct the research to provide the necessary data.

To learn more about the IR-4 program, visit http://pestdata.ncsu.edu/ir-4/. (*Bruce Paulsrud; sources: The Interregional Research Project No. 4 Web site: http://pestdata.ncsu.edu/ir-4/;* Illinois Pesticide Applicator Training Manual 39-13: Demonstration & Research, *University of Illinois Extension, 2001.)*

Pesticide Update

The following information provides registration status of particular pesticides and should not be considered as pesticide recommendations by University of Illinois Extension.

Agronomic

2,4-D—EPA has extended time-limited residue tolerances on soybeans. They now expire 12-31-04. *(FR,* vol. 67, 3-8-02) [herbicide]

BEYOND (imazamox)—BASF—Registration is expected this spring for use in wheat and canola. [herbicide]

CRUISER (thiamethoxam)—Syngenta—Registration is expected this spring as a seed treatment on corn to control wireworms, seed corn maggot, white grubs, and flea beetles.

DEFINE DF (flufenacet)—Aventis/Bayer—This product will be marketed by both companies this year for use on corn to control grasses.

EXPERT (s-metolachlor/atrazine/glyphosate)—Syngenta—A new combination herbicide being marketed for use on corn and milo.

HEADLINE (pyraclostrobin)—BASF—Registration is expected this spring for use on cereals to control various diseases.

MESOMAXX (mesosulfuron-methyl)—Aventis—Being developed for post-emergence grass and broadleaf control in cereals.

OPTION (foramsulfuron)—Aventis—Registration is expected this spring for use on corn as a postemergence treatment.

PROPIMAX EC (propiconazole)—Dow AgroSciences—Being marketed to control various diseases in wheat and corn.

SOYGARD (azoxystrobin/metalaxyl)—Gustafson—A new seed treatment for use on soybeans. [fungicide]

STEADFAST (nicosulfuron/rimsulfuron)—DuPont—A premix that will be marketed this year for use on corn. [herbicide]

STRATEGO (trifloxystrobin/propiconazole)—Bayer—Registration is expected this spring to use on corn to control corn leaf blight, rust, grey leafspot, and eye spot.

Fruit/Vegetable

ABOUND (azoxystrobin)—Syngenta—Added to their label the use on blueberries, currants, elderberries, gooseberries, huckleberries, ligonberries, and juneberries. [fungicide]

ACTARA (thiamethoxam)—Syngenta—Being developed for use on stone fruits, blueberries, and cranberries. [insecticide]

APPLAUD 7OWP (buprofezin)—Nichimo America—Registration is pending with EPA to use on apples and pears to control various insects.

AUXIGRO (GABA/glutamic acid)—Emerald Bio Ag—Added to their label for this fungicide/growth regulator control of brown rot and suppression of shot hole on stone fruits.

CAPTURE (bifenthrin)—FMC—Registration is expected later this year for use on pears, pecans, and walnuts. [insecticide]

DECIS (deltamethrin)—Aventis—Registration is expected later this year for use on pome fruits, stone fruits, and nut crops. [insecticide]

ENABLE (fenbuconazole)—Dow AgroSciences—EPA extended time-limited residue tolerances on stone fruits (except plums and prunes), pecans, and bananas. They now expire 12-31-04. (*FR,* vol. 67, 1-15-02) [fungicide]

FLINT (trifloxystrobin)—Bayer—Added to their label the control of blossom blight and powdery mildew on almonds and botrytis bunch rot on grapes.

FUJIMITE (fenpyroximate)—Nichimo America—Being developed in the United States for use on apples, pears, grapes, nut crops, and stone fruits to control mites.

GEM 25WG (trifloxystrobin)—Bayer—Registration on potatoes for early and late blight control is expected this spring.

HEADLINE (pyraclostrobin)—BASF—Registration is expected this spring for use on vegetable crops.

INSPIRE (butafenacil)—Syngenta—A new nonselective herbicide being developed for use on grapes, nut crops, and pome and stone fruits.

INTREPID (methoxyfenozide)—Dow AgroSciences—As a result of the IR-4

Project, registration is expected later this year on grapes, stone fruit, and nut crops.

LEVERAGE (imidacloprid/cyfluthrin)—Bayer—Added to their label the control of Colorado potato beetle and leafminers on potatoes.

MATRIX (rimsulfuron)—DuPont—Label changes include the addition of aerial application on potatoes. [herbicide]

MICROTHIOL (sulfur)—Cerexagri—Added to their label the control of leaf spot and powdery mildew on pears.

PROCURE (triflumizole)—Uniroyal—Registration is expected this year on cucurbits and strawberries. [fungicide]

PROVADO (imidacloprid)—Bayer—As a result of the IR-4 Project, registration is expected later this year on blueberries and cranberries to control leafhoppers, aphids, and whiteflies.

SONOLAN (ethalfuralin)—Dow AgroSciences—This preplant herbicide should be registered for use on potatoes by the end of the year.

STINGER (clopyralid)—Dow AgroSciences—Being developed for use on head and stem vegetables, mustard greens, spinach, strawberries, and turnips. [herbicide]

STRATEGY (ethalfuralin/clomazone)—Platte Chemical—A combination herbicide for preemergence use on cucumbers, melons, pumpkins, squash, and watermelons.

TOPSIN (thiophanate-methyl)—Cerexagri—Added to their label the control of shoot blight in pistachios, early and late blight in celery, and penicillin clove rot in garlic.

VALORAM II (clove oil/cinnamon oil/peppermint oil)—Soil Technologies—A new bioinsecticide for use on fruits and vegetables to control various insects.

Turf/Ornamental

BATTLESHIP (triclopyr/clopyralid/MCPA)—Helena Chemical Co—A new turf herbicide to control broadleaf weeds for use on sod farms, golf courses, parks, lawns, roadsides, and cemeteries.

CYGNUS (kresoxim-methyl)—BASF—Added to their label the use on ornamentals. [fungicide]

MEDALLION (fludioxonil)—Syngenta—Added to their label the con-trol of pink and grey snow mold on turf and the control of rhizoctonia, cylindro-cladium, fusarium, and sclerotium dis-eases on ornamentals.

OASIS (imazapic/2,4-D)—BASF—A combination herbicide for weed control, native grass release, and turf growth suppression on roadsides and other noncrop areas.

ORNAZIN (azadirachtin)—Sepro—This 3% EC formulation is now available for use on ornamentals. [insecticide]

SANMITE (pyridaben)—BASF—Marketing of this product into the ornamental market is now being done by Scotts Co. [insecticide]

TRANXIT (rimsulfuron)—Griffin—A new turf herbicide to remove overseeded turf species from basic turf species and to control poa annua. Apply during spring transition to provide gradual removal of ryegrass and poa trivialis.

Structural

OUTPOST TBR (diflubenzuron)—Bayer—A termite bait-response system to be used by pest-control operators to control termites.

PHANTOM (chlorfenapyr)—BASF—EPA issued an experimental permit to use this new termiticide bait on 22 acres of residential/commercial structures. It is authorized for use in 34 states, including Illinois. Expires 12-31-02. *(FR,* vol. 67, 1-25-02)

PREVENTOL TM (imidacloprid)—Bayer—A new formulation to control termites on fence posts, utility poles, buildings, deckings, and wood pilings.

SUBTERFUGE (hydramethylnon)—BASF—A new bait for termite control.

Many

AT-EZE (Pseudomonas chlororaphis strain 63-28)—Agrium Inc.—EPA has approved an application to conditionally register this new active ingredient for use as a soil drench to control various diseases on greenhouse ornamentals and vegetable crops. *(FR,* vol. 66, 12-31-01)

BLAZER (sodium acifluorfen)—EPA has released risk assessments for this postemergence herbicide registered for use on soybeans, peanuts, and rice—as well as for spot treatments on driveways, sidewalks, and patios. The public may submit risk-mitigation proposals; the comment period expires 5-28-02. The risk assessments and related documents are available at http://www.epa.gov/oppsrrd1/reregistration/acifluorfen/. The Federal Register notice, which provides more detailed information on providing comments, is available at http://www.epa.gov/fedrgstr. EPA plans to complete a Reregistration Eligibility Decision (RED) this year. *(Source: EPA Pesticide Program Update e-mail 4/19/02.)*

CORTO (tritosulfuron)—BASF—A new broad-spectrum herbicide being developed for use on various crops.

DIMILIN (diflubenzuron)—Uniroyal—Label changes include the restriction from use in bodies of water where swimming is likely to occur and the restriction from use in commercial fish-production ponds. Also, as a result of the IR-4 Project, registration is expected later this year on pears, stone fruits, and nut crops. [insecticide]

EVISECT (thiocyclam)—Syngenta—The rights to this product have been purchased by Arysta Life Sciences and Nippon Kayaku, both of Japan. It is used on vegetables, sugarcane, and ornamentals. [insecticide]

MIDAS (iodomethane)—Aventis—A soil fumigant being developed as a replacement for methyl bromide.

METGARD 6ODF (metsulfuron-methyl)—Makhteshim-Agan—A new

formulation available for use in noncrop-area forests, rangelands, and pastures. [herbicide]

MILBEKNOCK (milbemectin)—Sankyo/Gowan—Being registered for use on pome fruits such as apples, crabapples, loquat, mayhaw, pears, and quince. [insecticide]

MUNDUS-SYSTEM (Eretmocerus mundus)—*Biobest*—This Belgian company has a new bioinsecticide used to control the sweet potato whitefly.

OUTLOOK (dimethenamid-p)—BASF—Added to their label the control of mayweed. Also being developed for use on onions, potatoes, and sugarbeets. [herbicide]

QUIKPRO (diquat/glyphosate)—Monsanto—A new nonselective herbicide being developed for use in parks, recreational areas, residential areas, and other noncrop areas.

RAPTOR (imazamox)—BASF—Registration is expected on alfalfa and dry beans. [herbicide]

REDEEM R+P (triclopyr/clopyralid)—Dow AgroSciences—Marketed for use on grass pastures and in noncrop areas to control hard-to-kill weeds.

VELPAR (hexozinone)—DuPont—Added to their label chemigation on dormant alfalfa and to impregnate on dry-bulb fertilizers for use on forestry sites. [herbicide]

Other

ARYSTA LIFE SCIENCES—This is a new company formed by the merger of Tomen and Nichimen life-sciences division. The U.S. subsidiary Tomen Agro has since changed its name to Arvesta Corp.

AVENTIS—The company has entered into an agreement to purchase the professional insecticides of Clorox Corp. These are marketed as Maxforce and contain either fipronil or hydramethylnon. Aventis will have global rights to these in the professional market, and Clorox will continue to sell its household insecticides Combat and Black Flag.

BAYER/AVENTIS—The company plans to base its North American headquarters at the headquarters of Aventis in Research Triangle Park, NC. The Kansas City location of Bayer will become the headquarters for formulation and manufacturing.

CERTIS—The company has reached an agreement with 3M Company to market their sprayable pheromone products in the United States and Mexico. Is has also acquired part of Ecogen's B.t. insecticide line. Products included are CryMax, Lepinox, Condor, Raven, and the nematode insecticide Cruiser. Ecogen will continue to market AQ-10, MVP, and Match.

FMC—The company has reached an agreement with ISK of Japan to develop and market their new insecticide product IKI-220 (flonicamid) in the Americas.

SEPRO—The company has purchased from Dow AgroSciences their growth-regulator fluprimidol. It is sold throughout the world under the trade names Cutless, Topflor, and Greenfield, and is used to curtail growth on trees.

UNIROYAL—The company has changed its name to Crompton.

(Michelle Wiesbrook, unless otherwise noted, adapted from Agricultural Chemical News, *March and April 2002.)*

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